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10/589,075	08/11/2006	Andrew Maxwell Scott	124-1166	5828

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EXAMINER	
LAPAGE, MICHAEL P	
ART UNIT	PAPER NUMBER
4158	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/589,075	SCOTT ET AL.	
	Examiner	Art Unit	
	MICHAEL LAPAGE	4158	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11th August 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☒ Claim(s) *1,17,19 and 23* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11th August 2006* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11th August 2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-23 are presented for examination.

Specification

The abstract of the disclosure does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the disclosure is required and must be presented on a separate sheet, apart from any other text.

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:
(1) if a machine or apparatus, its organization and operation;
(2) if an article, its method of making;
(3) if a chemical compound, its identity and use;
(4) if a mixture, its ingredients;
(5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

4. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) TITLE OF THE INVENTION.
(b) CROSS-REFERENCE TO RELATED APPLICATIONS.
(f) BACKGROUND OF THE INVENTION.
    (1) Field of the Invention.
    (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
(g) BRIEF SUMMARY OF THE INVENTION.
(h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
(i) DETAILED DESCRIPTION OF THE INVENTION.
(j) CLAIM OR CLAIMS (commencing on a separate sheet).
(k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

Appropriate correction is required.

Drawings

5. The drawings are objected to because Fig. 4 outlines an additional 5 curly bracket, examiner is unsure of what it is attempting to specify and believes it needs to be removed. In Fig. 5 it is believed that the objected labeled 10 should be replaced with 19 to coincide with specification. It is also requested that applicant explain or label the hashed line outlining part of the apparatus in Fig. 6. In Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing

should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Appropriate correction is required.

Claim Objections

6. Claims 1, 17, 19, and 23 are objected to because of the following informalities: It is unclear to the examiner how to interpret the claims listed as they all include multiple transitional phrases incased within one claim. It is requested that the claims be rewritten in proper form. The examiner is breaking up the claims into the elements that are believed to be what the applicant intended.

7. Claim 10 is objected to because of the following informalities:

a. line 1, "Apparatus according to claim 1 and including" should read –Apparatus according to claim 1 including–

Appropriate correction is required.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Frey et al. (U.S. PGPub No. 2002/0159030 A1).

10. **As to claim 1, Frey discloses an apparatus for indicating the departure of a shape of an object from a specified shape, the apparatus comprising radiation means for directing an incident beam of radiation onto the object** [i.e. eye], **and inspecting means** [i.e. wavefront analyzer] **for inspecting the final beam after transmission by or reflection from said object** (Fig. 2; [0080], lines 3-7; [0083], lines 9-12), **where**

the apparatus is arranged so that the final beam will have a substantially planar wavefront when said object has said specified shape (Fig. 1a; [0067], lines 9-13), **and**

said inspecting means is arranged to determine any departure of the wavefront of the final beam from planarity, characterised in that said inspecting means

comprises beamsplitting means and detector means where (Fig. 2; [0083], lines 1-12)

the beamsplitting means is arranged to split the final beam into two or more beams and to direct said two or more beams to laterally displaced locations on the detector means (Fig. 2&6; [0083], lines 4-16; [0155], lines 21-28).

11. **As to claim 2, Frey discloses an apparatus where said radiation means is arranged to produce a collimated beam of radiation** ([0080], lines 5-7).

12. **As to claim 3, Frey discloses an apparatus where said incident beam of radiation is optical radiation** ([0080], lines 5-7).

13. **As to claim 4, Frey discloses an apparatus where at least one additional wavefront shaping means is disposed between the radiation means and the inspecting means** (Fig. 4) where plate 32 is shown as shaping the wavefront.

14. **As to claim 5, Frey discloses an apparatus where at least one said additional wavefront shaping means is located between the radiation means and the object** (Fig. 2) where lens 224 is shaping the wavefront.

15. **As to claim 6, Frey discloses an apparatus where at least one said additional wavefront shaping means is located between the object and the inspecting means** (Fig. 2) where diaphragm 16 is shown shaping the wavefront.

16. **As to claim 7, Frey discloses an apparatus where at least one said additional wavefront shaping means comprises a lens or curved reflector** ([0085], lines 6-9).

17. **As to claim 8, Frey discloses an apparatus where at least one said additional wavefront shaping means comprises a diffraction grating or hologram** ([0088], lines 1-10; [0089], lines 4-6; Fig. 4) where examiner is interpreting shaped light transmissive apertures to be arranged in a grating formation thus making them analogous to the claimed diffraction grating, and where that interpretation would have been obvious to one of ordinary skill in the art.

18. **As to claim 9, Frey discloses an apparatus where at least one said additional wavefront shaping means is provided by a spatial light modulator** ([0185], lines 14-16) where spatial filter modulates light to different intensities and shapes the wavefront accordingly.

19. **As to claim 10, Frey discloses an apparatus including means for adjusting the relative position of the object and a said wavefront shaping means** (Abstract lines 1-2; [0022], lines 6-8) where the eye moves with headrest movement and the eye being the object measured.

20. **As to claim 11, Frey discloses an apparatus comprising a beam splitter** [i.e. 20] **between said source** [i.e. 12] **and said inspecting means** [i.e. 26] (Fig. 2) where beamsplitter is presented between the source and detector in reference figure 2.

21. **As to claim 12, Frey discloses an apparatus where the beamsplitting means of said inspecting means comprises at least one of a diffraction grating and hologram**. ([0088], lines 1-10; [0089], lines 4-6; Fig. 4) where examiner is interpreting shaped light transmissive apertures to be arranged in a grating formation thus making

them analogous to the claimed diffraction grating, and where that interpretation would have been obvious to one of ordinary skill in the art.

22. **As to claim 13, Frey discloses an apparatus where the beamsplitting means of said inspecting means comprises non-diffractive**[i.e. actual detector itself is not diffractive in nature] **beamsplitter means for receiving light from two spaced object planes along a common path for transmission to first and second image areas along respective first and second optical paths, and focussing means arranged to bring said first and second object planes into focus in said first and second areas** (Fig. 6, [0155], lines 21-28)**.**

23. **As to claim 14, Frey discloses an apparatus where the inspecting means is arranged to provide an analysis of the shape, or components of the shape, of the wavefront of the final beam** ([0014], lines 1-3; [0016], lines 10-17)**.**

24. **As to claim 15, Frey discloses an apparatus where the detector means of the inspecting means comprises a pixelated imaging photosensor** (Fig. 3; [0020], lines 4-7)**.**

25. **As to claim 16, Frey discloses an apparatus where the pixelated imaging photosensor is a charge coupled device (CCD) array** (Fig. 3; [0020], lines 4-7)**.**

26. **As to claim 17, Frey discloses an apparatus for indicating the departure of a shape of an object from a specified shape, the apparatus comprising radiation means for directing an incident beam of radiation onto the object, and inspecting means for inspecting the final beam after transmission by or reflection from said object** (Fig. 2; [0080], lines 3-7; [0083], lines 9-12)**, where**

the apparatus is arranged so that the final beam will have a substantially planar wavefront when said object has said specified shape (Fig. 1a; [0067], lines 9-13)**, and**

said inspecting means is arranged to determine any departure of the wavefront of the final beam from planarity characterised in that said incident beam of radiation directed onto the object by the radiation means has a non-spherical wavefront (Fig. 2; [0083], lines 1-12) where a planar wavefront is known to one skilled in the art as non-spherical**.**

27. **As to claim 18, Frey discloses an apparatus where said incident beam of radiation directed onto the object** [i.e. eye 120] **by the radiation means has a substantially planar wavefront** (Fig. 2; [0081], lines 1-4; [0082], lines 1-7).

28. **As to claim 19, Frey discloses a method of indicating the departure of a shape of an object from a specified shape, the method including the steps of directing an incident beam of radiation onto the object so that that a final beam following transmission by or reflection from said object would have a planar wavefront if the object has said specified shape** (Fig. 1a&2; [0080], lines 3-7; [0083], lines 9-12; [0067], lines 9-13)**, and**

inspecting the final beam for any departure of its wavefront from planarity characterised in that the step of inspecting final beam comprises the step of splitting the final beam into two or more beams and directing said two or more beams to laterally displaced locations on detector (Fig. 2&6; [0083], lines 1-16; [0155], lines 21-28).

29. **As to claim 20, Frey discloses a method where said object is an optical component** ([0082], lines 1-7) where lens 124 can be interpreted as an optical component.

30. **As to claim 21, Frey discloses a method where said optical component is a window or is of generally laminar form, or comprises a planar reflective surface** ([0082], lines 1-7) where lens 124 can be interpreted as an optical component and since allowing light to pass through also a window.

31. **As to claim 22, Frey discloses a method where said optical component has optical power, and including the step of providing an additional wavefront shaping means in the radiation path for providing general planarity in said final beam** (Fig. 1a; [0082], lines 1-7; [0067], lines 9-13).

32. **As to claim 23, Frey discloses a method of indicating the departure of a shape of an object from a specified shape, the method including the steps of directing an incident beam of radiation onto the object so that that a final beam following transmission by or reflection from said object would have a planar wavefront if the object has said specified shape** (Fig. 1a&2; [0080], lines 3-7; [0083], lines 9-12; [0067], lines 9-13)**, and**

inspecting the final beam for any departure of its wavefront from planarity characterised in that the step of directing an incident beam of radiation onto the object comprises the step of directing a beam of radiation having a non-spherical wavefront (Fig. 2; [0083], lines 1-12) where a planar wavefront is known to one skilled in the art as non-spherical.

Prior Art Made of Record

33. The prior art made of record and not relied upon is considered pertinent to applicants disclosure.

a. Zanoni (U.S. PGPub No. 2003/0002048 A1) discloses a similar device able to measure multiple aspherical surfaces.

b. Prikryl (U.S. Patent No. 5,675,413) discloses a similar device with adjustable component such as the micromirror and test source.

c. Bille (U.S. Patent No. 5,062,702) discloses a device for corneal mapping using planer wavefronts to impinge and then be detected.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL LAPAGE whose telephone number is (571)270-3833. The examiner can normally be reached on Monday Through Friday 7:30AM-5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Benson can be reached on 571-272-2227. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael LaPage/
Examiner, Art Unit 4158

/Walter Benson/
Supervisory Patent Examiner, Art Unit 4158